

THE TECH

VOL. XXVII. No. 24

BOSTON, MASS., MONDAY, NOVEMBER 25, 1907

PRICE THREE CENTS

BE AT BACK BAY STATION, 5.30 P.M. TO-DAY

TECH WILL RACE B.A.A. RELAY TEAM.

MEET AT PARK SQUARE STATION.

Other Tech Men Will Enter Open Events.

The Relay Team is to run the B. A. A. in a one-mile relay race at the meet of the Park Square Association Dec. 4th. The first man on each team is to run two laps of the track and the following runners will cover three laps apiece. This makes a total of eleven laps and is equal to a mile.

The arrangements have been made by George V. Brown of the B. A. A. and Manager D. C. McMurtrie of the Tech Track team. The object in view was to provide a race as nearly as possible equal in distance to the regular one-mile relay with quarter mile divisions and also to have the relays made up of even number of laps. As it is the first man will have to run about 360 yards and the remaining relays will be 480 yards long.

The B. A. A. runners have done almost no work this season and the Tech team is in very poor condition. The race will serve as a tryout for the men and as a starter for later work. Many of the high-class men on the Tech team have recently been paying a great deal of attention to cross country work, and for this reason the team will have very little time for practice.

Several men of the Tech team will be entered in the open events. In the sixty yard handicap the most promising entrants will be W. J. Seligman 1911, F. D. Stewart 1910, C. W. Gram 1909, K. D. Fernstrom 1910, G. Wilbur 1911, H. Lockett 1910, E. M. Potter 1911, and J. S. James 1911. The high jump will be contested by R. H. Allen 1909, R. L. Bartlett 1910, A. R. Nagle 1910, and C. W. Wilson.

The relay team will be picked from the following men: C. W. Gram, B. L. Gimson, H. W. Blackburn, W. C. Salisbury, W. J. Seligman, E. M. Potter, H. Lockett, A. A. Gould, G. Wilbur, P. Hart, and K. D. Fernstrom.

WHITNEY WINS TOURNAMENT.

M. T. Whiting, '08, defeated P. M. Wentworth, '09, in the finals of the singles of the fall tennis tournament. Whiting proved himself to be undoubtedly the better man, winning straight sets, 6-2, 6-1, 6-3.

HOLD LAST RUN.

In final preparation for the annual handicap cross country run a small squad ran over the eight-mile course on Saturday. The men lost the regular course after they had gone about four miles, so no trail could be laid. The trail will be laid on Wednesday afternoon, and those desiring to acquaint themselves with the course can walk over it at that time. The first five men finishing on Saturday were Pearl 1910, Mills 1910, White 1911, Howe 1909, and Ames 1908.

SHOW LYRICS OUT.

Subjects for the songs to be sung in this year's Show were sent out on Friday to the thirty men in the music and lyrics competition. The list contains over twenty suggestions for lyrics which can be used in "Over the Garden Wall," the majority of these being of a humorous or topical nature. The suggestions give wide field for selection and originality and, with the usual large number of candidates out for this department of the Show work, some excellent results can be expected. The Show management has made special appeal for original specialties in the song and lyric line not covered by the lists sent out, and welcomes all suggestions on any other phases of the Show development.

TECH'S HOPES FOR CROSS COUNTRY LAURELS WEDNESDAY LIE IN EVENNESS OF TEAM.

THIS YEAR'S RACE OUGHT TO BE CLOSER THAN FOR YEARS AS NO TEAM SEEMS TO BE BEST, ALTHOUGH CORNELL IS THE FAVORITE.

Syracuse Will Run This Year, So That Seventy-Two Men Will Face The Starter. Nine Men Will Start For Tech.

Teams from eight colleges meet at Princeton Wednesday afternoon to decide the intercollegiate cross country championship of America. The race, which is the ninth annual event of the kind, is always the climax of the cross country season and never fails to attract a star field of distance runners. This year it is no exception to the rule.

In fact the number of entries is considerably larger than ever before due

running of MacGregor, who came in sixth.

Howland, Batchelder, and Callaway of last year's team are again in harness. MacCreadie, Ellis, and Gimson are remarkable for their steadiness, while McCarty and Stephenson have shown good ability and will have a chance to make good in the race Wednesday.

What the team will do at Princeton is a good deal of a gamble. On the form shown in the race with Harvard no better than a sixth place can be expected while if the team performs as well as they did in the trials at Readville they ought to bring home a third for the Institute.

Yale has two of last year's team running again, Spitzer, and Luther. These two with Reynolds, Vilas, and Haskell make the most probable point winners for the Blue. Although victorious over Harvard the Yale team was soundly trounced by Princeton and thus looks good for little better than fifth.

Harvard has the good fortune to be led by as game a runner as ever put on a shoe. Capt. Crosby has displayed his capacity for punishment in many a hard race and if the rest of the team come up to his standard, the Cambridge lads would be a hard proposition for any team.

As it is, however, Harvard looks anything but strong. Although their first race resulted in an easy victory over Tech's disorganized team, the week following Yale had no trouble defeating the Crimson team. Crosby is the only veteran running and the new material has not shown any very surprising amount of speed as yet.

Tech will be represented by Captain H. H. Howland 1908, H. R. Callaway 1908, B. L. Gimson 1908, C. S. Clapp 1908, C. L. Batchelder 1908, R. Ellis 1909, J. N. Stephenson 1909, W. T. MacCreadie 1911, P. D. White 1911, Manager R. W. Ferris 1908, Coach Frank Kanaly.

Cornell is very naturally the favorite for the team prize. The Ithaca university is without any question the foremost producer of distance runners in this country. Schutt, Newman, Magoffin, Munsen, all wore the big red C and these are only a few out of a host. What the team is capable of this year can only be surmised, but it is reasonable to suppose that Aoakley will come down with his usual bunch of stars and add another cross country championship to the seven already captured by the Red and White.

Zink, the track captain, is however running again and his presence adds materially to the team's strength. He did not run last year. The best thing about the Columbia team is its recent race with Princeton, when the Tiger cubs only won by the close score of 37-43.

Princeton looks on paper to be the strongest team outside of Cornell and Penn, having beaten both Columbia and Yale and thus having victories by proxy over Harvard and Tech to her credit as well. The team is composed largely of veterans, Magic, Capt. Keiley, and Vernon having run last year. Whitely, who won the Yale race, covered the intercollegiate course in 35 minutes 52 seconds only 24 seconds slower than Jone's time. Ralph and Campbell, who finished fifth and seventh against Columbia are also to be counted on.

The Orange and Black runners have the further advantage of having gone over the course until they know it by heart, and this is no small matter. Everything considered, Princeton should be right up with the leaders.

Syracuse is an unknown quantity as this is her first appearance in cross country circles. However it may be taken for granted that the Orangemen are not travelling way to Princeton for their health and they will probably have something to show next Wednesday.

Taken altogether, the race this year ought to be closer than for some time as no team seems on paper to be out of the running and no others seem so very much superior to the rank and

(Continued on page 3.)

TECH RESEARCHES FILL USEFUL SPHERE.

KNOWLEDGE BEING EXTENDED.

Professors Also Write Many Magazine Articles.

A survey of the researches completed or in progress in the laboratories of the Institute illustrates strikingly one sphere of usefulness of a great scientific school, in extending the horizon of human knowledge, and in applying natural law to human needs.

Chief among the researches in the field of pure science are the investigations carried out in the Research Laboratory of Physical Chemistry, maintained by a contribution from the W. E. Hale Research Fund, by an anonymous private gift—continued now for several years—of \$3,000, and by the grant to Dr. A. A. Noyes of \$2,000 from the Carnegie Institute.

The place as director of the laboratory is taken by Prof. G. N. Lewis, who is assisted by sixteen collaborators, of whom ten devote their entire time to research. Of these collaborators three received last year, and another is now seeking, the Institute degree of doctor of philosophy.

The results of the numerous investigations which have already been completed in this laboratory have recently appeared in a comprehensive memoir published by the Carnegie Institution.

A new form of conductivity bomb, capable of withstanding very high pressure, has recently been constructed. In this bomb the vapor pressure, density, and compressibility of water up to the critical point are being studied, as well as in the influence of pressure on the electrical conductivity of solutions.

Closely allied investigations are being made upon electric transference in mixed salt solutions, the solubility of salts in water at high temperatures, and the dielectric constant of water up to its critical point.

Further investigations are directed toward the determination of the common electrode potentials, and of the free energy of important chemical reactions. Indirectly, but vitally connected with these, is an investigation of the specific heat of gases at very high temperatures, which is now being undertaken by Prof. H. M. Goodwin and Dr. H. T. Kalinus.

Dr. C. A. Kraus, who is carrying on the last-named investigation, has succeeded in finding the missing link between the metallic and the electrolytic conductor and has thus obtained a new point of attack for the problem of the electron.

Dr. Carl Von Ende, who obtained his degree under Nerust and Belander at Goettingen in 1899 and was recently assistant professor of chemistry at the University of Iowa, is continuing in conjunction with Prof. Lewis a research begun by Prof. Lewis and Mr. Sargent on the free energy changes involved in certain typical chemical reactions, as determined by the measurement of electrode potentials.

Dr. John Johnston of Perth, Scotland, who was for twelve years a student and for two years a Carnegie research scholar under J. Walker, a leading physical chemist of Great Britain, at the University of St. Andrews, and who has since 1905 studied at Breslau under Aeegg, will be occupied in one of the principal fields of research developed in this laboratory, the measurement of the electrical conductivities of aqueous solutions at high temperatures.

Mr. R. B. Arnold, S. B. from the Rose Polytechnic Institute at Terre Haute, Ind., chemist with the Kentucky Tobacco-Product Company of Louisville and Richmond, and investigator of the utilization of the by-products of tobacco manufacture, is determining the heat of neutralization of acids and alkalies at the temperature of boiling

(Continued on page 3.)

THE TECH

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Monday, November 25, 1907.

BE THERE.

Few opportunities come to the Tech man to enthusiastically cheer a Technology team. So few that the Tech man almost forgets what it is to cheer.

Today comes an opportunity, a chance to cheer a big Technology team. The Cross Country Team leaves for the intercollegiate race at 5.30 today, from the Back Bay Station.

This team needs encouragement, needs to know that Technology is behind it.

Let every man be there to cheer the team, the captain, the men, the coach. Let every man be there with his voice, and his room-mate. Come in parts, dozens, sections. Come with enthusiasm. Uncork it!

ON THE TEACHING OF SCIENCE.

Modern civilization rests on scientific knowledge. Without science the peoples of today would be in the same condition as the peoples of two centuries ago. In fact, broadly viewed, science has made possible the civilization of the present.

In the whole development of the human race the forward steps have lived, for they have always led to a better understanding of the universe.

In other discoveries of science there has been constant change. As one writer puts it:

"The fabrics of the kingdoms melt away; where Accad and where Carthage stood, no broken pillar lifts its lonely form to mark the spot amid desert silences. The dust and dreams of Caesar mingle with the forgotten ashes of his slaves."

But the Pythagorean triangle, Archimedes' lever, the theorems of Euclid, the magnetic compass of the dynasty of Tsin, Galileo's telescope, the world system of Copernicus, Kepler's celestial laws, Newton's discoveries, the balances and retorts of Lavoisier, Watt's laboring giants of steam, Volta's pile, Darwin's theory, and Faraday's whirling magnets are "possessions imperishable, while civilization, their fruit, survives."

Democritus, Bacon, Descartes, Torricelli, Roemer, Herschel, and Laplace were men, great men, broad men. So have been all other famous men of science.

Every student of science should know about these men, these things. Every name should be familiar. To know about them would make the study of science broadening. "History of Science" should not be an optional but a required subject for students of all courses.

Not only should the conquests of science, with its heroes, be introduced to the student but there should also be given to him a comprehensive idea of the value of his studies, the interrelations and co-relations of the various subjects given in his course.

Scientific training, properly given, is broadening, not narrowing. As given at the Institute most of the courses deal with science in sections. One small corner at a time is searched out with little attempt to view the whole edifice.

Improperly approached any branch of knowledge will be narrowing. The

minute study of one period in history, perspective neglected, will be narrowing. It is only when the whole sweep of centuries is viewed that history gives the student breadth.

It is easy for the student to see the relations, one to another, of the different parts of history and the development of those parts, but until he has completed his course it is difficult for him to see the connection between the various branches of science.

It, therefore, seems essential that the student understand why he is studying certain subjects that are apparently in no way connected with his ultimate profession.

Steps have been taken in this direction in many courses. The new method in the instruction of mathematics, which binds together the various branches, is a noteworthy example.

To give the student of science enthusiasm, he must be informed of the achievements of science, of the great works that have been done and those that are being done in the scientific world. To give the enthusiastic student an opportunity to take full advantage of the course he is about to pursue, he must see that the various parts go together to make an integral whole, everything necessary, everything inter-related.

REMEMBER REMEMBER REMEMBER

The Time—5.30 P.M. Today.

The Place—Back Bay Station.

The Occasion—Cross Country Team Leaves for Princeton.

POINTERS TO FRESHMEN.

Plug or pack. Don't try to be a cheer leader for upper-classmen.

Don't leave the Institute forgetting to graduate.

Beware of Sophomores and look wise. If at first you don't succeed, petition.

If necessary take a five-year course; thus many embarrassing explanations may be avoided.

Get busy while you've got a chance and don't talk about working right up to eleven o'clock.

Do each day's work as it comes, even if you have to sit up all night to do it. It is harder to do it later.

Get a pull with the Faculty, wear a clean collar and attend all class meetings if they don't conflict with meals.

If you want to stay at Technology and are stupid—go to some other college; if you are mediocre—be a grind; if you are bright—thank God, but look out!

Mind your own business and be democratic; don't think that you are any better than anybody else. "The bluest blood is putrid blood, the people's blood is RED."

Remember you represent the Institute. Show them that you know how, whether at Jake Wirth's, the Skating Rink, or a country blacksmith's shop.—Technique, 1908.

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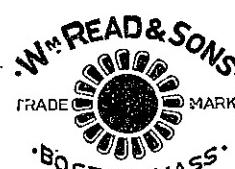
The Review aims to develop closer relations among Institute men and to stimulate their interest in the work of the College. It is in no sense an engineering magazine, but deals broadly with the problems of Technological Education and the responsibilities of the professional man.

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TECH'S HOPES.

(Continued from page 1.)

file as to make a run-away out of it. With six men scoring instead of four men complications are liable to ensue; for a college which has four crackjack men may not have two more of even mediocre calibre to back up their stars.

It seems, in fact, that the well-balanced team ought to win this year and this makes Cornell's victory even more likely than under the old system. At Ithaca everyone not playing football in the fall runs across country and Moakley could make up a second team able to beat almost any other college. This wholesale training is what makes the Ithacans strong in this branch of sport.

The stars do not make the team; rather, the stars are a result of the training system, or in other words the team makes the stars. In team racing, it is the last man to score who determines the team's position and it is the realization of this fact that has enabled the Cornell coach to produce the teams he has.

The individual championship is not so easy to decide. Last year Jones came home by inches only, and with seventy men running this year there are all kinds of possibilities. A great deal depends on how each man feels the day of the race, the pace plays a prominent part, and a dozen other considerations enter into the sum total of a big race. One thing is certain: there ought to be a grand race down in Jersey on Wednesday and the winner will know he has been running, whoever he may be.

The Technology team is, as already stated, a good deal of a puzzle. If Howland runs the race he is capable of, he ought to be in the first five without question. MacCreadie, unless he gets rattled by his first big race, should come close behind his captain, while Gimson, Ellis, McCarthy, Stephenson, Batchelder, White, and Callaway should finish close together as there is little to choose among these men. It is in this even balance that Tech's hopes of a good place at the finish lie.

FACULTY NOTICES.

GENERAL BULLETIN. — Subject schedule for the last eight weeks will begin according to the tabular view this week.

NOTICES.

IOWA CLUB. — All those interested in the formation of an Iowa Club are requested to meet in Room 523, Tech Chambers on Wednesday evening, at 8 P. M.

The men who took subscription books for THE TECH, to sell, will please turn them in and settle with G. A. Haynes, Circulation Mgr., as soon as possible.

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TECH RESEARCHES.

(Continued from page 1.)

water, using a calorimeter developed by Mr. R. S. Gifford during the past year.

Mr. R. D. Gale, graduate of the Institute in 1907, is now working with Dr. Bray on a new scheme of qualitative analysis which Dr. Noyes and Dr. Bray are developing for the detection of the acids.

Many scientific investigations more directly applied to practical uses have been recently completed by Technology men. Significant for industrial chemistry is a paper in the September Journal of the American Chemical Society by Prof. H. P. Talbot and Mr. A. G. Woodman on the fluorine content in malt liquors, suggesting a maximum limit of permissible fluoride in such liquors.

In the same Journal Prof. Fay reports experiments on tin-tellurium alloys, and in the Technology Quarterly a determination of sulphur in pyrite.

Upon the subject of sanitation Prof. C. E. A. Winslow prints two papers in a form to be widely circulated and influential, one as bulletin of the New York State Library, reviewing the year's legislation throughout the country in the direction of public health and safety; the other the September bulletin of the Vermont State Board of Health, discussing in general the problem of the disposal of sewage.

Prof. G. Shaad reports in the June Electrical Journal experience with leading stationary induction apparatus for heat tests.

In the Journal of the Western Society of Engineers Prof. Jackson reports in full his extended investigations into the electrical lighting of railway trains. Electric power is obtained from a steam turbine generating apparatus in the baggage car; or from a small generator on the truck of each car, driven by the axle; or from storage batteries.

The last plan is simplest, but proves expensive and inapplicable on long runs; the first requires constant attention and is applicable chiefly on long overland runs when the connection between the car units composing the whole train will be infrequently disturbed; the second, though possessing the great advantage of lighting each car as an independent unit, is complicated because the energy supplied from the axle is interrupted when the train stops, and the rather elaborate machinery consequently requires the greatest care in installing.

One of the most triumphant results of many years experimenting at the Institute is the table for the separation of ores perfected by Prof. R. H. Richards of the Mining Department. His device proves superior in economy of space, in speed, in capacity, and in quality of product, to any of the tables with which it would compete.

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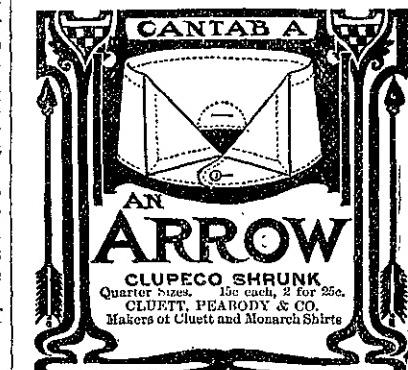
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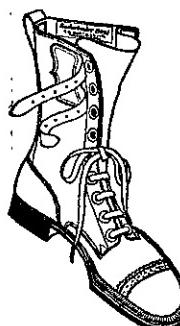
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